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(72) Inventeurs/Inventors:

KHOURI, ANTHONY JAMES, AU;  
RODGERS, WILLIAM, AU;  
TIPPINS, WILLIAM D., US

(73) Propriétaires/Owners:

MCNEILUS TRUCK AND MANUFACTURING, INC., US;  
FAVCO COMPOSITE TECHNOLOGY (US), INC., AU;  
FAVCO TRUCK MIXERS INTERNATIONAL PTY.  
LIMITED, AU;  
COMPOSITE TECHNOLOGY R&D PTY. LIMITED, AU;  
RODGERS, WILLIAM, AU;  
KHOURI, ANTHONY JAMES, AU

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(71) Applicants (for all designated States except US): **MC NEILUS TRUCK AND MANUFACTURING, INC.** [US/US]; P.O. Box 70, Highway 14 East, Dodge Center, Minnesota 55927 (US). **FAVCO COMPOSITE TECHNOLOGY (US), INC.** [AU/AU]; 39 Shoalhaven Road, Sylvania Waters, Sydney, New South Wales 2224 (AU). **FAVCO TRUCK MIXERS INTERNATIONAL PTY LIMITED** [AU/AU]; 39 Shoalhaven Road, Sylvania Waters, Sydney, New South Wales 2224 (AU). **COMPOSITE TECHNOLOGY R & D PTY LIMITED** [AU/AU]; 39 Shoalhaven Road, Sylvania Waters, Sydney, New South Wales 2224 (AU).

(71) Applicants and

(72) Inventors: **KHOURI, Anthony, James** [AU/AU]; 39 Shoalhaven Road, Sylvania Waters, Sydney, New South Wales 2224 (AU). **RODGERS, William** [AU/AU]; 10-12 Childs Road, Chipping Norton, Sydney, New South Wales 2224 (AU).

(72) Inventor; and

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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## MIXING DRUM

### BACKGROUND

[0001] Front discharge concrete mixing drums generally extend above a cab of a vehicle and discharge concrete at a front of a vehicle. Because such drums must extend over and above the cab, front discharge drums are extremely long, typically requiring extra sections which must be bolted together. This extra length subjects portions of the drum to greater stresses and creates additional seams where concrete can collect. As a result, cleaning of the front discharge drum is even more tedious and time consuming as compared to cleaning the interior of rear discharge drums. In addition to collecting on the interior of the concrete mixing drum, concrete also frequently collects on the exterior of the drum. Collection of concrete on the exterior of the drum further increases the time and cost of cleaning the drum.

### SUMMARY OF THE INVENTION

[0002] According to the present invention there is provided a rotary concrete mixing drum which has a first helical wall element with a first ramp formation and a second helical wall element with a second ramp formation. The second helical wall element is joined to the first helical wall element along a helical seam with the first and second ramp formations disposed adjacent to the seam. The first helical wall element and the second helical wall element form a substantially continuous common wall having an interior surface circumferentially extending about a longitudinal axis to form an interior of the drum. The interior surface is at least partially provided by a polymer infused with a slip agent. The polymer includes polyurethane and the slip agent is a polytetrafluorethylene powder configured to be held firmly in place so as to not substantially migrate within the polymer and having a weight percentage of at least 2 % and no greater than 5 % of the infused polymer along the surface or a polyalpha olefin fluid having a branched structure so as to not significantly migrate within the polymer and having a weight percentage of at least 2 % and no greater than 5 % of the infused polymer along the surface.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0003] FIGURE 1 is a side elevational view of a concrete mixing vehicle having a mixing drum according to one exemplary embodiment.

[0004]       FIGURE 2 is a sectional view of the drum of FIGURE 1.

[0005]       FIGURE 3 is an enlarged fragmentary sectional view of a portion of the drum of FIGURE 1.

[0006]       FIGURE 4 is an enlarged fragmentary sectional view of a barrel of the drum of FIGURE 1.

[0007]       FIGURE 5 is a side elevational view of an alternative embodiment of the concrete mixing vehicle of FIGURE 1 with another embodiment of a mixing drum.















































15. The drum of claim 1 wherein the impregnated polymer has a Modulus 300% of at least 12 MPa.

16. The drum of claim 1 wherein the impregnated polymer has a tear strength of at least 68 kN/m.

17. The drum of claim 1 further comprising inwardly extending projections configured to move material as the drum is rotated, wherein the projections partially provide the interior surface of the drum.

18. The drum of claim 17, wherein the projections have an exterior surface including the infused polymer.

19. The drum of claim 18, wherein at least a portion of one of the projections has a thickness completely formed from the infused polymer.



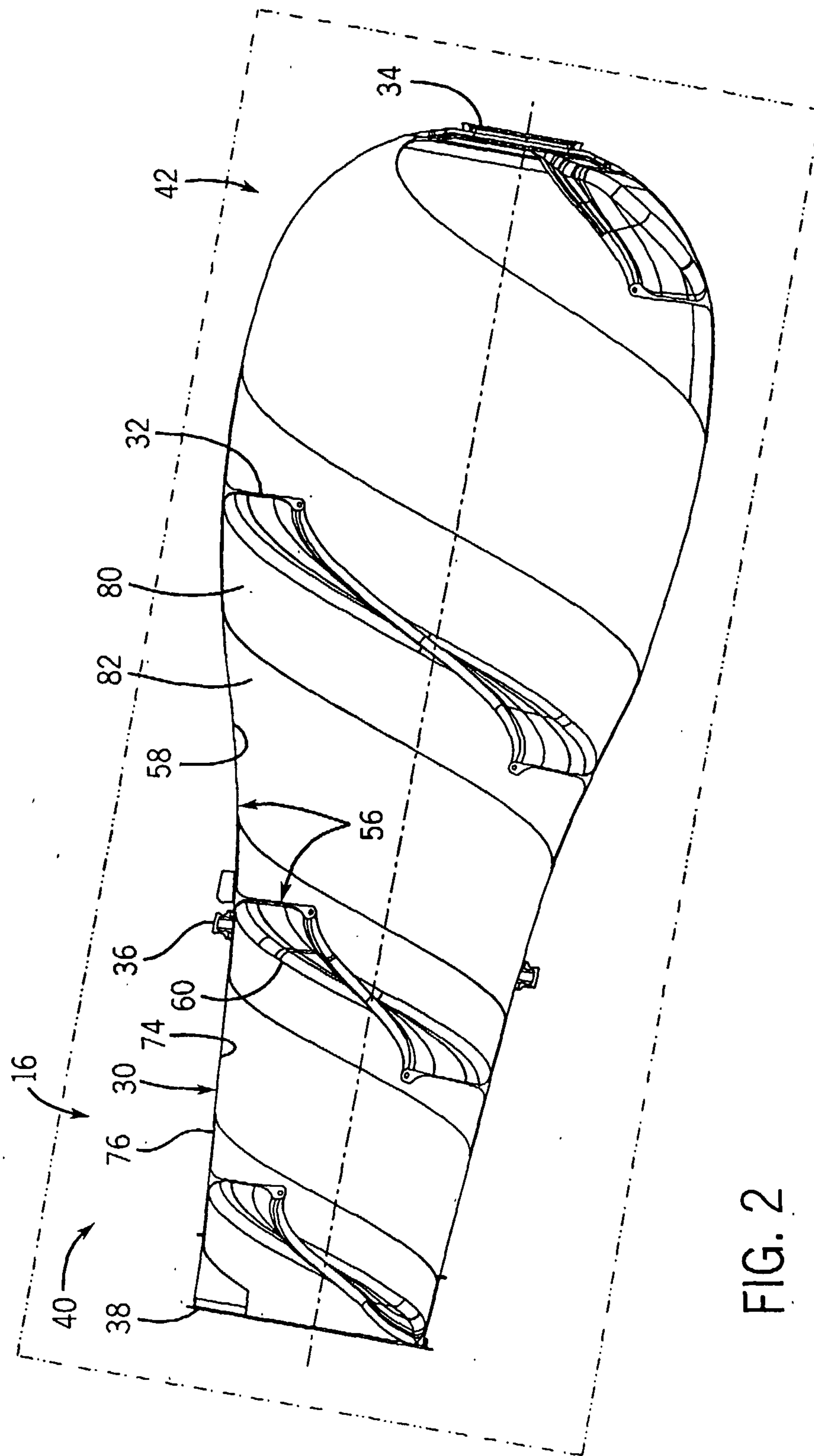
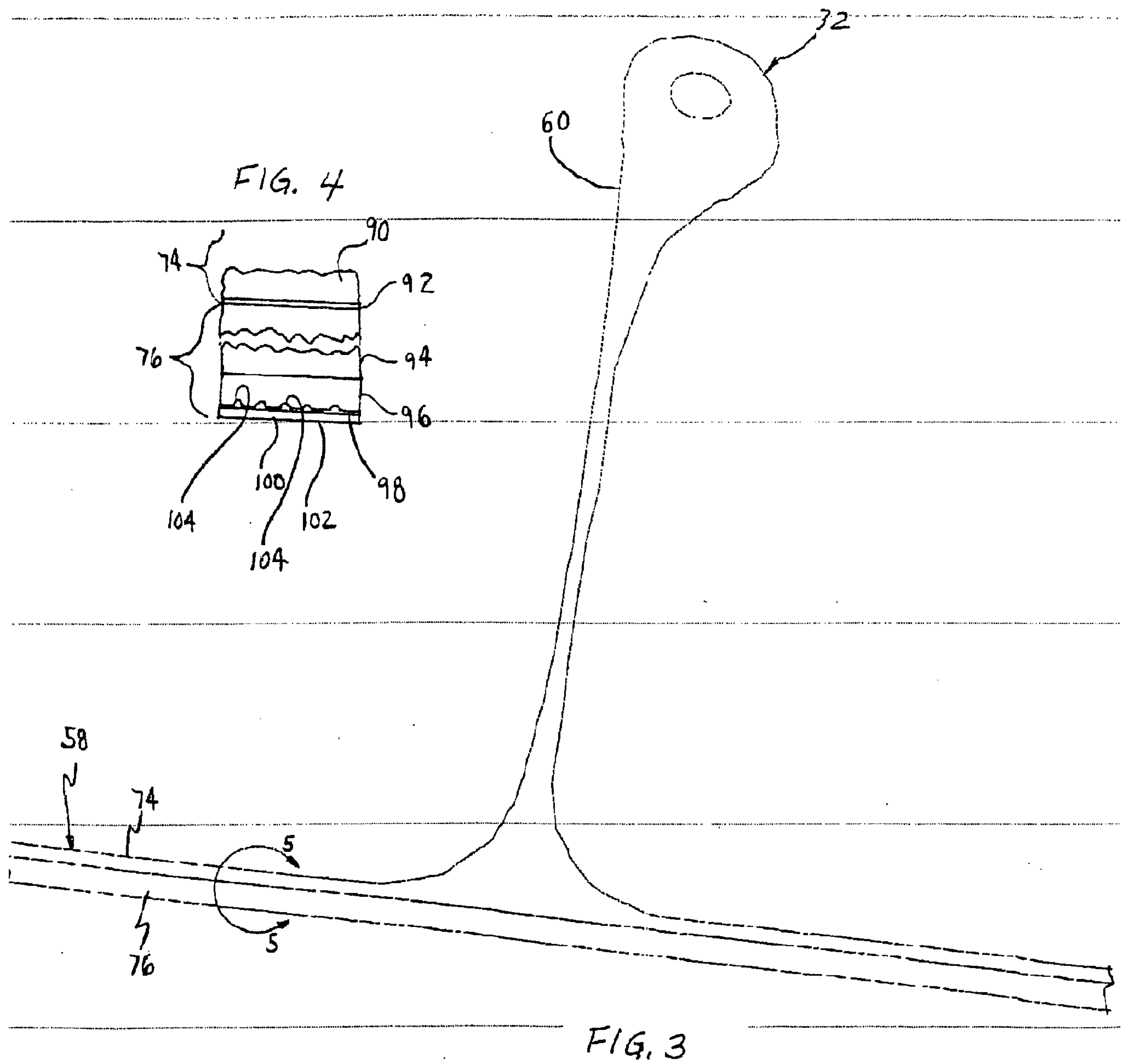


FIG. 2



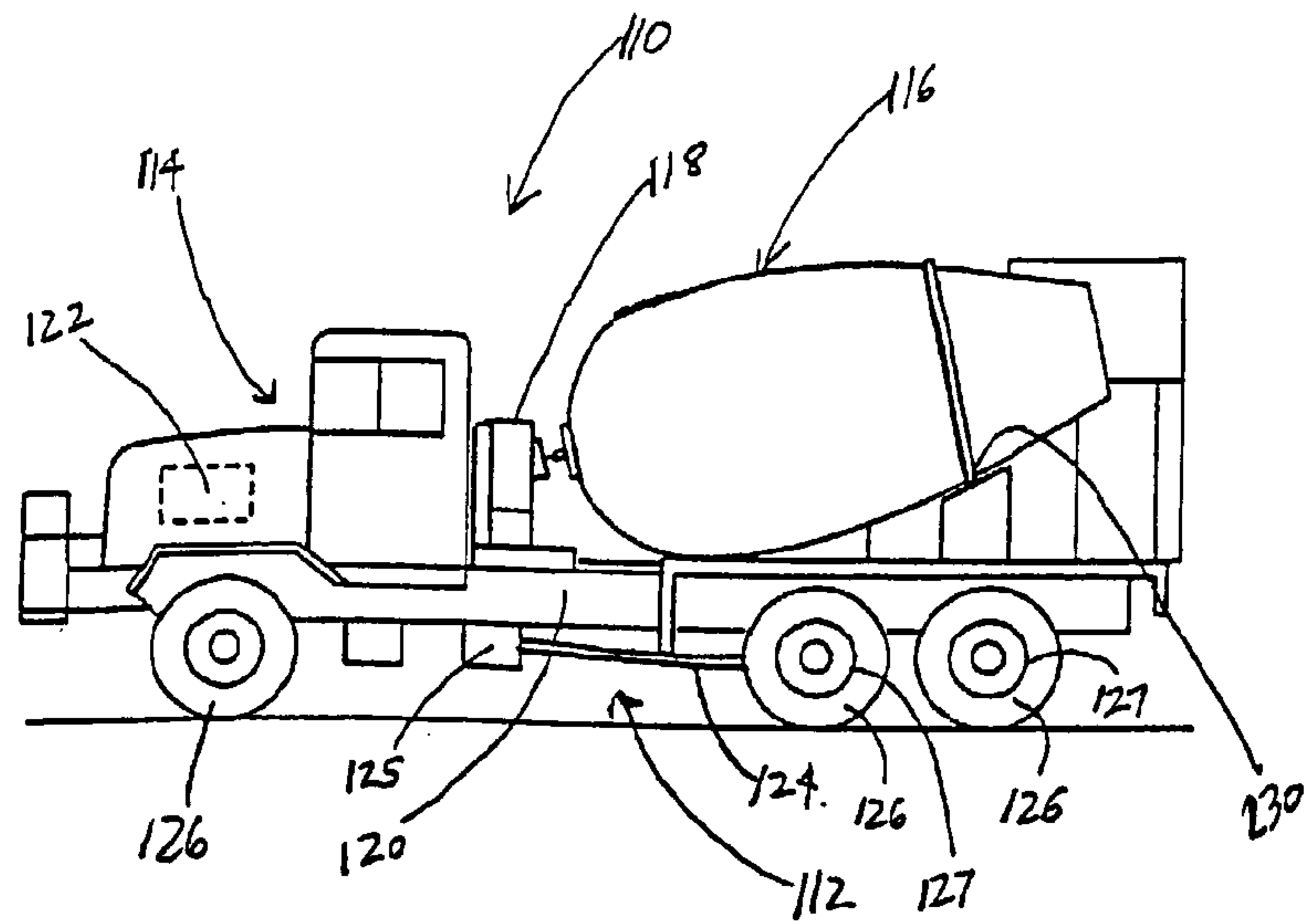


FIG. 5

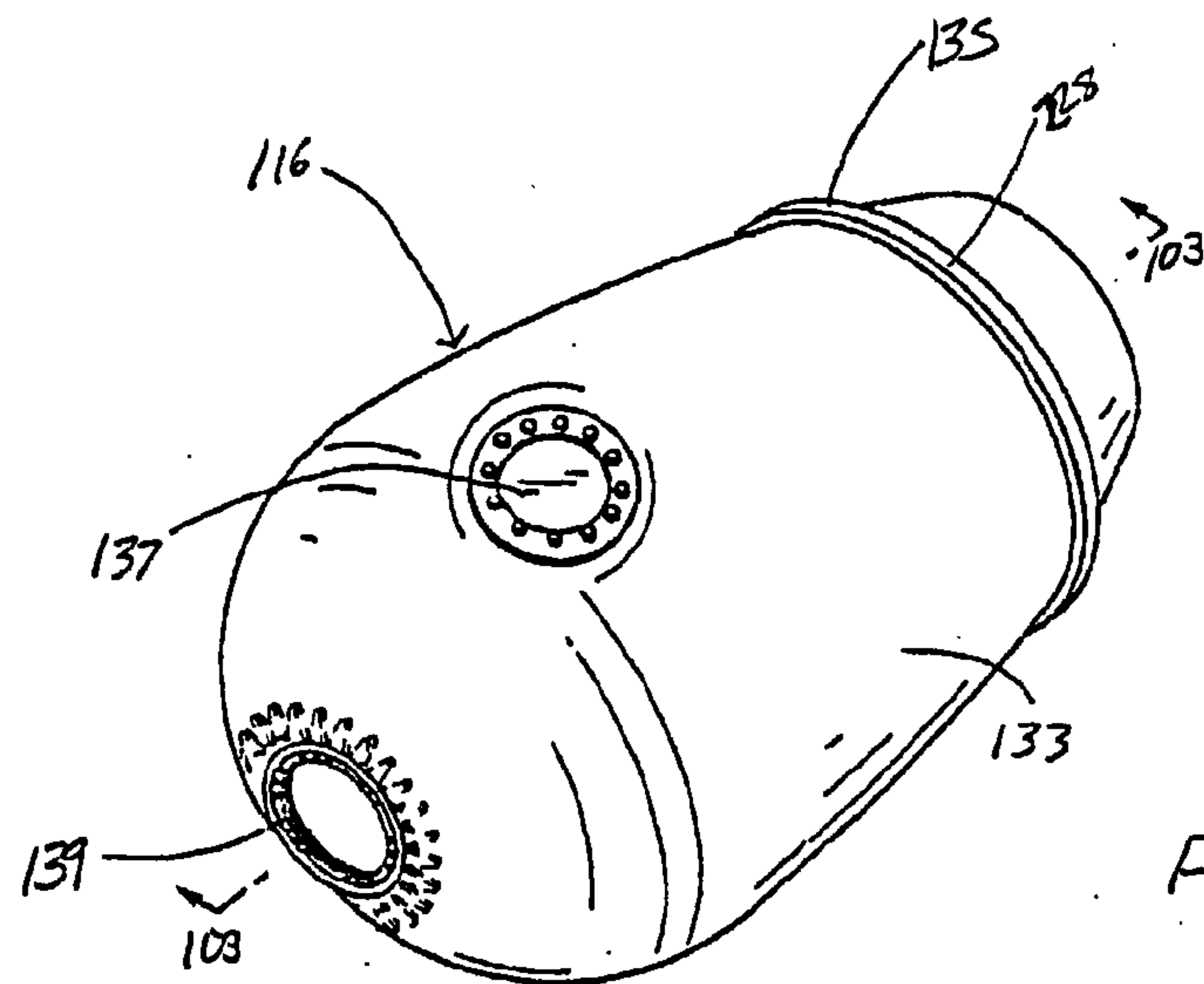


FIG. 6



